



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/674,900	09/29/2003	Robert F. Bartfai	TUC920030109US1	4827
35825	7590	04/10/2006	EXAMINER	
LAW OFFICE OF DAN SHIFRIN, PC - IBM 14081 WEST 59TH AVENUE ARVADA, CO 80004			MYINT, DENNIS Y	
			ART UNIT	PAPER NUMBER
			2162	

DATE MAILED: 04/10/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary**Application No.**

10/674,900

Applicant(s)

BARTFAI ET AL.

Examiner

Dennis Myint

Art Unit

2162

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 September 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-29 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-29 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 29 September 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>09/29/2003</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. Claims 1-29 have been examined.

Specification

2. The disclosure is objected to for the following informalities:

On page 8 line 2 and line 10, it is recited that "the secondary control unit 106".

According to the drawing of the specification, those recitations should read "the secondary control unit 104".

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to

Art Unit: 2162

consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

3. Claim 1-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Milillo et al. (U.S. Patent Number 6643671) in view of Asselin et al. ("Implementing Concurrent Policy", IBM Document Number GG24-3990-00, December 1993) and further in view of Smith (U.S. Patent Number 6269432).

Referring to claim 1, Milillo et al. is directed to a method for protecting consistency groups during a data storage backup operation (Milillo et al., Figure 2), comprising:

transferring data updates from a host device (Milillo et al. Figure 2 "Host" 42) to primary PPRC volumes on a primary PPRC unit (Milillo et al., Figure 2, "Source Volume" 52) (Milillo et al., Column 7 Line 1-25);

upon the primary PPRC volumes forming a consistency group, transferring the primary PPRC volumes to FlashCopy source volumes (Milillo et al. Figure 2, "Primary Target Volume" 54) on a secondary PPRC unit;

and committing a FlashCopy operation of the consistency group from the FlashCopy source volumes to corresponding FlashCopy target volumes (Milillo et al., Figure 2, "Secondary Volume" 56) (Milillo et al. Column 7 Line 44-63).

Note that Milillo et al. recites that "It should be noted that Fig. 2 depicts a single PPRC volume pair (primary target volume 54 and secondary volume 56) and a single source volume 52 for the sake of simplicity only. As those of ordinary skill will

Art Unit: 2162

appreciate, additional volume pairs and source volumes may also be included". Thus, in the method and system of Milillo et al., additional volumes can be placed on both primary and secondary systems and Primary Target Volumes of Milillo et al. (Milillo et al. Figure 2, Primary Target Volume 54) could be PPRC Primary Site Storage Volumes of the claimed invention (Specification of the claimed invention, Figure 1, PPRC Primary Site Storage Volumes 116). However, Milillo et al. does not teach that write-inhibit indicators are imposed on a FlashCopy source volume (Milillo et al. Figure 2, "Primary Target Volume" 54) and that committing a FlashCopy operation if the preparation of all FlashCopy source volumes are successful and reverting the FlashCopy operation if said preparation is not successful.

On the other hand, Asselin et al. teaches a method of concurrent copy where in source is not available for access for a short period of time while concurrent copy process initialized (Asselin et al. Page 2, i.e. "when you use concurrent copy, application processing is interrupted only for a short period while the system initializes the concurrent copy environment" and Page 3, i.e. "The system serializes access to the data being dumped or copied long enough for the concurrent copy session to be initialized."). It is inherent in the method of concurrent copy as taught by Asselin et al. that write-inhibit indicators are imposed during the initialization period of the concurrent copy process. In addition, Smith teaches a method and system for redundant data wherein updates are committed only when primary and secondary caches and primary and secondary disks updates are both successful and reverted if any one of said

Art Unit: 2162

updates is not successful (Smith, Figure 2B and Column 4 Line 5 through Column 5 Line 58).

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to combine the method of Milillo et al. for data copying using consistency groups with the methods of Asselin et al. and Smith so that, in the combined method, write operations on source consistency group volumes would be made unavailable by way of using write-inhibitors (i.e. preparing the consistency groups for FlashCopy) and mirroring/copying/updates between the consistency group volumes (FlashCopy operations) would be committed if preparations of consistency groups are successful and reverted if said preparation is not successful. One would have been motivated to do so in order to "reduce the amount of time that is required to back up application data, hence increasing the time available for online service" (Asselin et al., Page 2 Second Paragraph) and to "provide a method which better maintains database availability despite memory device failure" (Smith, Column 1 Line 47-49).

Referring to claim 2, the method and system of Milillo et al. in view of Asselin et al. and further in view of Smith as discussed above with regard to claim 1 discloses the invention as claimed. Asselin et al. discloses on that "when you use concurrent copy, application processing is interrupted only for a short period while the system initializes the concurrent copy environment" and Page 3, i.e. "The system serializes access to the data being dumped or copied long enough for the concurrent copy session to be initialized." (Asselin et al., Page 2). It is inherent in the method of concurrent copy as taught by Asselin et al. that write-inhibit indicators are imposed during the initialization

Art Unit: 2162

period of the concurrent copy process, whereby preventing prevent the to reception of data updates by the FlashCopy source device transmitted from the PPRC source device during a FlashCopy operation.

Referring to claim 3, the method and system of Milillo et al. in view of Asselin et al. and further in view of Smith as discussed above with regard to claim 1 discloses the invention as claimed. It is inherent in the method and system of Milillo et al. in view of Asselin et al. and further in view of Smith that write-inhibitors would be released if the preparation of all FlashCopy source volumes is successful (Asselin et al., Page 3, i.e. "After logical completion, the data is once again available for unrestricted application access).

Referring to claim 4, the method and system of Milillo et al. in view of Asselin et al. and further in view of Smith as discussed above with regard to claim 1 discloses the invention as claimed. In the method and system of Milillo et al. in view of Asselin et al. and further in view of Smith, if the preparations of consistency groups are not successful, updates/copies are reverted. Please see the discussion above with regard to claim 1. Therefore, it is inherent in the method and system of Milillo et al. in view of Asselin et al. and further in view of Smith that the step of preparing each FlashCopy source volume for a FlashCopy operation comprises generating an Establish-FlashCopy-revertable command.

Referring to claim 5, the method and system of Milillo et al. in view of Asselin et al. and further in view of Smith as discussed above with regard to claim 1 discloses the invention as claimed. In the method and system of Milillo et al. in view of Asselin et al.

and further in view of Smith, mirroring/copying/updates between the consistency group volumes (FlashCopy operations) would be committed if preparations of consistency groups are successful. Please see the discussion above with regard to claim 1.

Therefore, it is inherent in the method and system of Milillo et al. in view of Asselin et al. and further in view of Smith that the step of committing the FlashCopy operation comprises generating a Withdraw-FlashCopy-commit command.

Referring to claim 6, the method and system of Milillo et al. in view of Asselin et al. and further in view of Smith as discussed above with regard to claim 1 discloses the invention as claimed. In the method and system of Milillo et al. in view of Asselin et al. and further in view of Smith, mirroring/copying/updates between the consistency group volumes (FlashCopy operations) would be reverted if preparations of consistency groups are not successful. Please see the discussion above with regard to claim 1. Therefore, it is inherent in the method and system of Milillo et al. in view of Asselin et al. and further in view of Smith that the step of reverting the FlashCopy operation comprises generating a Withdraw-FlashCopy-revert command.

Claim 7 and 8 are rejected on the basis of claim 1. It is inherent in the method and system of Milillo et al. in view of Asselin et al. and further in view of Smith that a decision is always involved to determine if the preparations of consistency group volumes are successful and unsuccessful and committing or reverting the step depending on said decision (Smith, Figure 2B and Column 4 Line 5 through Column 5 Line 58).

Art Unit: 2162

Claim 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, and 29 are rejected on the same basis as claim 1, 2, 3, 7, 8, 1, 2, 3, 4, 5, 6, 7, 8, 1, 2, 3, 4, 5, 6, 7, and 8.

Conclusion


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dennis Myint whose telephone number is (571) 272-5629. The examiner can normally be reached on 8:30AM-5:30PM Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Breene can be reached on (571) 272-4107. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Dennis Myint

AU-2162


JOHN BREENE
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2100

BC